



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAY 16 2011

Colonel Keith A. Landry
District Engineer
Louisville District Corps of Engineers
OP-FN, Room 752
P.O. Box 59
Louisville, Kentucky 40201-0059

Dear Colonel Landry:

The U.S. Environmental Protection Agency has completed its review of the U.S. Army Corps of Engineers (Corps), Louisville District, draft decision document compiled in support of the Corps' proposal to authorize Premier Elkhorn's proposed Little Fork Surface Mine in Pike County, Kentucky (LRL-2007-594, DMP 898-0800). The Corps forwarded this decision document to the EPA on May 6, 2011, and in accordance with the Enhanced Coordination Procedures agreed to by the EPA and the Department of the Army on June 11, 2009, the EPA has ten days to either (1) advise the Corps that the Agency does not intend to pursue further action on the subject permit, or (2) initiate action under Section 404(c) of the Clean Water Act (CWA). This letter is to inform you that the EPA will not be initiating procedures pursuant to Section 404(c) of the CWA for the proposed Little Fork Surface Mine. However, we recommend additional special conditions, which are enclosed, in order to further protect water quality and avoid the potential for significant degradation of downstream waters of the U.S., consistent with the CWA Section 404(b)(1) Guidelines, as the Corps works to reach a final permit decision on this project.

The CWA Section 404(b)(1) Guidelines require that no discharge of dredged or fill material shall be permitted if it "[c]auses or contributes ... to violations of any applicable State water quality standard." (40 C.F.R. Section 230.10(b)(1)). Additionally, the Guidelines prohibit any discharge of dredged or fill material that would cause or contribute to the significant degradation of the waters of the United States (40 C.F.R. Section 230.10(c)). Effects contributing to significant degradation include significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, resulting from the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site, as well as the effects of pollutants on aquatic ecosystem diversity, productivity and stability (40 C.F.R. Sections 230.11(c)(2) and (3)).

Restrictions on the Discharge of Fill Material

The Corps' draft decision document provided to the EPA on May 6, 2011, proposes to authorize the construction of Pond 1 and Pond 21 and the discharge of dredged and/or fill material into Hollow Fill (HF) 1, HF 5, and HF 6 as Phase 1 of the project authorization. Approval to commence Phase 2 of the project, which will include construction of HF 3, Pond 3, HF 4, and Pond 15, will be contingent on written approval from the Corps, and is to be based at least in part on proposed physical habitat assessment and categorical bioassessment (e.g. no change in quality category, poor, fair, good, etc.,

relative to baseline conditions) of downstream receiving waters into which streams on the mine site discharge. In light of the strength of the scientific studies documenting water quality impacts downstream of existing hollow fills (a.k.a. valley fills) in Appalachia, and the uncertainty whether proposed best management practices (BMP's) will prevent similar problems at this project site, the EPA's preference is that fills should be constructed one at a time, with subsequent fills contingent on achieving defined water quality objectives. The EPA acknowledges that, from a practicability standpoint, more than one fill may be necessary on the proposed Little Fork Surface Mine. However, CWA authorization of the majority of stream impacts, as currently proposed in the draft decision document, should be contingent on documented achievement of water quality objectives for initial mining activities. As described below, this demonstration is especially important prior to construction of HF 5, HF 6 and Pond 21.

In our letters to the U.S. Army Corps of Engineers, Louisville District dated September 30, 2010, and November 2, 2010, the EPA expressed significant concerns for the potential of the proposed Little Fork Surface Mine to adversely affect the water quality of Indian Creek, into which two of the proposed five hollow fills will drain (HF5 and HF6). Indian Creek is identified as the receiving water body for 6 of the applicant's 37 proposed National Pollutant Discharge Elimination System (NPDES) outfalls, and is on the Kentucky 2006, 2008, and draft 2010 CWA Section 303(d) list (partially supporting warm water aquatic habitat) for sedimentation/siltation and total dissolved solids (TDS).

The Section 404(b)(1) Guidelines prohibit permitting a discharge of dredged or fill material if such discharge would cause or contribute to violations of any applicable water quality standard. In light of this provision, and in light of the current water quality condition of Indian Creek, the EPA believes that any final Section 404 permit authorizing discharges of dredged or fill material to Indian Creek or its tributaries (e.g. HF 5, HF 6 and Pond 21) should contain an explicit requirement to document with observed data or other evidence that such discharges will not contribute to a violation of water quality standards in this stream, prior to initiating subsequent discharges in additional streams.

The Corps' draft decision document proposes to authorize the construction of Pond 1 and Pond 21 and the discharge of dredged and/or fill material into HF 1, HF 5, and HF 6, all of which will be constructed essentially concurrently and will be completed within the first twelve months of mining. This schedule provides no opportunity to monitor water quality to verify that BMP's and alternative hollow fill construction methods proposed by the applicant will avoid potential significant deleterious effects on downstream water quality prior to construction of sediment ponds and hollow fills in the most sensitive aquatic resources on the project site (i.e. tributaries to Indian Creek).

Scientific literature (references also enclosed), including research conducted by the EPA and reviewed by the EPA Science Advisory Board (EPA SAB 2011a; 2011b), has increasingly recognized the relationship between discharges from surface coal mining operations and downstream water quality and biological impairments. Paybins et al. (2000) found that streams draining mined watersheds in the Kanawha-New River Basin had elevated dissolved sulfate concentrations and specific conductance, as well as impaired benthic macroinvertebrate communities, relative to unmined watersheds in the same river basin. Merricks et al. (2007) found elevated specific conductance and metals concentrations downstream of hollow fills. Pond et al. (2008) found evidence indicating that coal mining activities had adverse impacts on aquatic life and the biological conditions of streams, and these effects were most strongly correlated with ionic strength. Pond (2010) linked conductivity as the most strongly correlated factor to *Ephemeroptera* abundance in streams impacted by mining and residential development. EPA (2011a) recognizes that surface coal mining causes water quality impairment and adverse effects on aquatic resources. EPA (2011b) developed a regional benchmark conductivity level protective of aquatic

life for the Appalachian coal field modeled after a standard methodology for deriving water-quality criteria (Stephan et al., 1985). EPA (2011b) defines that benchmark as 300 $\mu\text{S}/\text{cm}$, which approximates the upper 95th percentile confidence limit where no more than 5% of headwater stream genera have been extirpated. This value was determined from an evaluation of over 2,000 biological assessment samples in West Virginia and validated with data from 274 sites in eastern Kentucky. Almost ten years ago, the Kentucky Division of Water (KDOW) correlated degraded headwater stream biological communities with specific conductivity levels above 400 $\mu\text{S}/\text{cm}$ in the Eastern Kentucky Coal Field (Pond and McMurray, 2002).

The EPA conducted water quality and biological sampling of all project streams and their receiving waters in February, March and August 2010. EPA recorded in-situ specific conductance of 497 $\mu\text{S}/\text{cm}$ in February 2010, and 760 $\mu\text{S}/\text{cm}$ in August of the same year in Indian Creek, just downstream of the HF 5/6 unnamed tributary confluence. Biological sampling conducted according to KDOW protocols within the sampling index period for wadeable streams (5 to 200 miles²) in August 2010, revealed a Macroinvertebrate Bioassessment Index (MBI) score of 57.88 in Indian Creek. This value places the biological community into the lowest one-third of the distribution of scores in the “Fair” category for wadeable streams. In contrast, specific conductance measured in the HF 5/6 unnamed tributary from the approximate location of the proposed sediment pond (Pond 21) was 191 $\mu\text{S}/\text{cm}$ in February 2010, and the biological community sampled at this location in February 2010 (<5 miles² headwaters index period mid-February to the end of May) had an MBI score of 64.11 which is within the third quartile of scores in the “Fair” category for headwater streams. No in-situ water quality parameters were measured from headwater sites such as HF 5/6 in August 2010.

The EPA believes that the application of specific limits for specific conductance (e.g. 300 $\mu\text{S}/\text{cm}$) should be included as a demonstrable requirement prior to authorization of subsequent fills. The EPA believes that these limits, which would be based on the conclusions of the scientific studies described above, reflect the best-available scientific information. Although the EPA is unaware of any substantive additional site specific information applicable to the proposed Little Fork Surface Mine, we are willing in all cases to consider site specific data during the determination of scientifically defensible water quality limits.

Baseline and Post-Construction Monitoring

The Corps’ draft decision document outlines proposed special conditions requiring baseline biological assessment of downstream aquatic communities, as well as post-construction monitoring of specific conductivity from sediment pond outfalls and downstream bioassessment locations. Baseline specific conductivity monitoring would be required for a minimum of 12 months at all Phase 2 waters (i.e. HF 3/Pond 3 and HF 4/Pond 15). Additionally, specific conductance and biological sampling would be required at an off-site control watershed free of active mining or land disturbances in order to assist in the interpretation of seasonal variations.

Despite the strong correlations that best-available science provides for predicting biological impairment based on specific conductance in the Appalachian coal fields, there remains some uncertainty regarding the causal TDS constituent analytes that lead to that degradation. In addition, bioassessment can only occur within defined sampling index periods in order for the MBI scores derived by the KDOW to remain applicable (e.g. mid-February to the end of May for headwater streams draining watersheds less than 5 miles²). It is therefore conceivable that impaired water quality could be exerting an influence on the aquatic community for many months prior to any evidence of such effects being observed via bioassessment. For these reasons, the EPA continues to recommend requirement for a broad suite of

analytical water quality parameters to be evaluated as part of the special conditions for authorization of the Little Fork Surface Mine. The EPA anticipates that this suite of parameters would be consistent with those typically required by NPDES individual permit applications.

Other Recommended Special Conditions

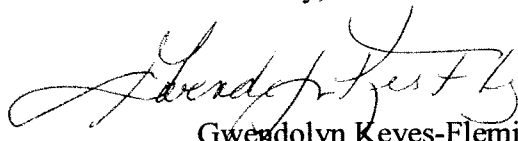
In order to further support efforts to document the efficacy of proposed BMP's and protect against adverse water quality impacts as a result of the authorized activities, EPA recommends monitoring of hydrologic flow permanence at each sediment pond outfall and whole effluent toxicity (WET) tests conducted quarterly based on the results of the flow permanence monitoring. In all cases, acute WET testing should be conducted, and in such cases where flow is documented to occur for more than 96 consecutive hours, chronic WET testing should also be required.

Conclusion

The EPA appreciates this opportunity to review Corps provisions intended to address the EPA's concerns with the proposed Little Fork Surface Mine. In summary, we believe that additional protective measures should be incorporated as special conditions into any CWA Section 404 authorization, including effective use of project monitoring data and a sequenced approach to constructing hollow fills that better ensures deleterious impacts to water quality and aquatic life are not occurring as a result of the authorized discharges.

I appreciate the efforts of your staff to coordinate review of this project with the EPA. If you have any questions or wish to discuss any of the recommend special conditions outlined in this letter, please call James D. Giattina, Director, Water Protection Division at (404) 562-9345.

Sincerely,



Gwendolyn Keyes-Fleming
Regional Administrator

Enclosures

cc: Mr. Jim Townsend, Louisville District
Ms. Lee Anne Devine, Louisville District
Mr. Todd Hagman, Louisville District
Mr. Joe Blackburn, Office of Surface Mining
Mr. Lee Andrews, U.S. Fish and Wildlife Service
Mr. Carl Campbell, Kentucky Department of Natural Resources
Mr. Bruce Scott, Kentucky Department of Environmental Protection
Ms. Sandy Gruzesky, Kentucky Division of Water

EPA recommended special conditions for the Premier Elkhorn, Little Fork Surface Mine authorization pursuant to Section 404 of the Clean Water Act.

Final EPA Proposed Special Conditions (5.10.2011)	
Sequencing	<p>1) In light of the strength of science that documents water quality (WQ) impacts downstream of existing valley fills, and the uncertainty whether proposed BMPs will prevent similar problems at this project, EPA's strong preference is that hollow fills should be constructed one at a time. Subsequent fills should be contingent on achieving water quality goals. However, if construction of more than a single hollow fill concurrently is required to implement BMPs critical to achieving WQ management objectives, EPA will assess whether a compelling case supports approval of more than a single hollow fill. In any case, to address uncertainties, final authorization of the majority of stream impacts must be contingent of achieving WQ objectives for initial mining activities.</p> <p>2) Results from conductivity monitoring (see below) will be used to calculate a six month rolling average. Subsequent fill(s) are prohibited if the rolling average exceeds 300 uS/cm .</p> <p>Monitoring for the six month rolling average would begin immediately upon initiation of fill activities.</p> <p>If any other WQBEL contained in the NPDES or 404 permit is exceeded, subsequent fill(s) are prohibited.</p> <p>Fill activities for subsequent fills cannot be initiated until the permittee addresses elevated conductivity or other WQBEL resulting from existing fills, and submits a revised fill construction plan designed to achieve all water quality-based requirements and that plan is approved by the Corps, EPA, and the State regulatory agencies.</p>
Monitoring	<p>1) Baseline flow weighted conductivity in project streams (minimum 1/week) and at downstream in-stream locations, plus in-stream biological monitoring (annual),</p> <p>2) Post-construction monitoring of hydrologic permanence (e.g. flow duration) at outfalls,</p> <p>3) Post-construction flow weighted conductivity (minimum 1/week) and analytical water quality (quarterly) at effluent outfalls and in-stream locations,</p> <p>4) Post-construction in-stream biological monitoring (annual),</p> <p>5) Whole Effluent Toxicity (WET) limits for acute toxicity and, where discharges are demonstrated to flow for more than 96 hours, chronic toxicity.</p>
Mitigation	1) ILF payments to the Kentucky Department of Fish and Wildlife Resources (KDFWR).
Certification	Certification: Unless otherwise required by the COE or State (such as FPOP in Kentucky) the operator must certify the mine plan and provide such certification to the Corps and EPA prior to construction of each hollow fill.

References:

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- EPA. 2011b. A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams. Office of Research and Development, National Center for Environmental Assessment, Washington, DC. EPA/600/R-10/023F.
- EPA SAB. 2011a. Review of field based aquatic life benchmark for conductivity in Central Appalachian streams. Science Advisory Board, Panel on Ecological Impacts of Mountaintop Mining and Valley Fills, Washington, D.C. EPA-SAB-11-005.
- EPA SAB. 2011b. Review of EPA's draft report on aquatic ecosystem effects of mountaintop mining and valley fills. Science Advisory Board, Panel on Ecological Impacts of Mountaintop Mining and Valley Fills, Washington, D.C. EPA-SAB-11-006.
- Merricks, T.C., D.S. Cherry, C.E. Zipper, R.J. Currie, and T.W. Valenti. 2007. Coal-mine hollow fill and settling pond influences on headwater streams in southern West Virginia, USA. *Environmental Monitoring and Assessment* 129:359-378.
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- Pond, G.J. 2004. Effects of surface mining and residential land use on headwater stream biotic integrity in the eastern Kentucky coalfield region. Kentucky Department of Environmental Protection, Division of Water, Frankfort, KY.
- Pond, G.J. 2010. Patterns of Ephemeroptera taxa loss in Appalachian headwater streams (Kentucky, USA). *Hydrobiologia* 641(1): 185-201.
- Pond, G. J., M. E. Passmore, F. A. Borsuk, L. Reynolds, and C. A. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. *Journal of the North American Benthological Society* 27(3): 717–737.
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